

ABSTRACT

A filter-less regulator is implemented for use in fluid flow systems that process low concentration reactive gases. The regulator includes an inlet, an outlet and a fluid flow path defined between the inlet and outlet by internal surfaces of the housing. The regulator further includes a pressure regulating section to reduce the pressure of a reactive gas flowing through the regulator between the housing inlet and the housing outlet. The internal surfaces of the housing are formed of a suitable material and the combined area of the internal surfaces is sufficiently sized to facilitate use of the regulator in the system without prior passivation for reactive gases at low concentrations (e.g., in the range of about 10 ppm or lower) while minimizing or substantially preventing significant loss of the reactive gas due to reaction and/or adsorption within the regulator.